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P. N. 8001-001

MEMORANDUM

TO: Jeff Lawson

FROM: Jack Guswa

DATE: March 26, 1992

SUBJECT: Corrections to Barbara Newman notes regarding the Feb. 18, 1992 meeting at EPA

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p. 2 There is an incorrect reference that wells ST1(?) and UC 15 are west perimeter wells to the Grace property. The wells, assuming we can figure out what ST1 is, are associated with the UniFirst property.

p. 3 Major heading 2 incorrectly states that the two-foot daily fluctuations in Grace well G36 DB2 "were traced to five production wells operating within 4,000 feet north and east of the site." The fluctuations have been recognized to represent the effects of one or more extraction wells, but have not been traced to any specific well(s). Five extraction wells have been identified within a 4000 foot distance of well G36DB2.

p. 3 The reference to the depths of the new extraction wells (G2DB and G2DB2) with respect to G36DB2 is incorrect. The screened interval of new well G2DB is about the same elevation as G36DB2. The screened interval of G2DB2 is about 150 feet lower than G36DB2.

p. 4 The references to discussions regarding the Grace site cross sections are slightly in error. Our representation regarding the vertical extent of the zone of capture was based on the assumption that the horizontal hydraulic conductivity beneath

the Grace property is greater than the vertical hydraulic conductivity. The degree of anisotropy has not been quantified, but the sections we prepared and the capture zones we estimated were based on a moderate degree of anisotropy of about ten to one. Section 3.2.3 of the report described the underlying assumptions regarding the horizontal to vertical anisotropy which were made in the preparation of both the areal views and the cross sections of the zone of capture.

In their review comments regarding the RD/RA report, EPA drew flow lines on our cross sections and concluded that the capture zone of the Grace recovery system was smaller than we had represented. The EPA flow lines were based on the assumption that there was no horizontal to vertical anisotropy in hydraulic conductivity beneath the Grace property. At the meeting we stated that it was our opinion that assuming isotropic conditions in cross section was not appropriate. We felt that the text of the report described the general procedure we used but, since it was apparently unclear to EPA, we volunteered to rewrite the text to try to improve clarity.

We do not intend to prepare isotropic flow nets to be provided to EPA. We said that we would prepare flow sections which had a scale correction which would allow the use of the "right angle rule" for drawing flow nets for anisotropic conditions. The scale distortion procedure for drawing flow nets for anisotropic media is described in general hydrogeology textbooks. The two cross sections we will provide are for an anisotropy of 9:1 (vertical exaggeration of 3) and 100:1 (vertical exaggeration of 10).

p. 4 With respect to operation of the Grace extraction system, we have referred to a cyclic operation of the extraction wells in the Source Areas. We have used the term cyclic operation as opposed to pulse pumping to avoid confusion resulting from the fact that we propose to use pneumatic "pulse pumps" in all extraction wells on the Grace property.

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